THAT WHICH IS CLAIMED:

1. A microelectronic relay comprising:

a support structure;

a first contact mounted on a first portion of the support structure;

a second contact mounted on a second portion of the support structure and deformable with respect to the first contact for selectively engaging the first contact, and

a piezoelectric actuator coupled to the second contact, wherein the piezoelectric actuator selectively deforms the second contact relative to the first contact.

2. The microelectronic relay of claim 1, further comprising an insulating layer disposed on the second contact, electrically insulating the second contact from the piezoelectric actuator.

3. The microelectronic relay of claim 1, wherein the piezoelectric actuator comprises a piezoelectric thin film sandwiched between a first metal electrode layer and a second metal electrode layer.

4. The microelectronic relay of claim 3, further comprising an insulating film sandwiched between the piezoelectric actuator and the second contact.

5. The microelectronic relay of claim 4, wherein the piezoelectric film is chosen from a group consisting of a ceramic thin film with a piezoelectric composition, a ceramic thin film with an electrostricive composition, a polymer thin film with a piezoelectric composition, and a polymer thin film with an electrostrictive composition.

6. The microelectronic relay of claim 1, wherein the second contact is a cantilever having a projection positioned opposite the first contact so that the first contact resides between a portion of the projection and the first portion of the support structure.

7. The microelectronic relay of claim 1, wherein the relay has a conductive state and a nonconductive state, wherein the second contact is electrically connected to the first

contact in the conductive state and electrically isolated from the first contact in the nonconductive state.

8. The microelectronic relay of claim 1, wherein the second contact is a bridge having a deformable central portion positioned opposite the first contact so that the first contact resides between the deformable central portion and the support structure.

9. A microelectronic relay comprising:

a support structure;

a first contact coupled to the support structure;

a second contact coupled to the support structure at a plurality of positions and having a deformable portion substantially opposite the first contact for selectively engaging the first contact, and

a piezoelectric actuator coupled to the second contact, wherein the piezoelectric actuator selectively deforms the second contact relative to the first contact.

10. The microelectronic relay of claim 9, wherein the second contact comprises:

a first end coupled to the support structure at a first position;

a second end coupled to the support structure at a second position, and

a central portion substantially between said first end to said second end.

11. The microelectronic relay of claim 9, further comprising an insulating layer disposed on the second contact.

12. The microelectronic relay of claim 9, wherein the piezoelectric actuator comprises a piezoelectric film sandwiched between a first metal electrode layer and a second metal electrode layer.

13. The microelectronic relay of claim 10, wherein the central portion is deformable.

14. The microelectronic relay of claim 12, further comprising a power source electrically connected to the first metal electrode layer and the second metal electrode layer.

15. The microelectronic relay of claim 14, wherein the piezoelectric film is chosen from a group consisting of a ceramic thin film with a piezoelectric composition, a ceramic thin film with an electrostricive composition, a polymer thin film with a piezoelectric composition, and a polymer thin film with an electrostrictive composition.

16. A method of fabricating a microelectronic relay comprising the steps of:

providing a support structure;

fabricating a first contact on a first portion of the support structure;

fabricating a second contact on a second portion of the support structure, wherein the second contact is deformable with respect to the first contact for selectively engaging the first contact, and

fabricating a piezoelectric actuator that selectively deforms the second contact relative to the first contact.

17. The method of claim 16, further comprising the step of forming an insulating layer between the second contact and the piezoelectric actuator.

18. The method of claim 17, wherein the step of fabricating a piezoelectric actuator comprises:

forming a first metal electrode layer on the insulating layer;

depositing a piezoelectric material on the first metal electrode layer;

depositing a second metal electrode layer on the piezoelectric material.